



Mealybugs

Viti-note Summary:

- Characteristics
- Description
- Identifying different species and their distribution
- Life cycle
- Symptoms
- Damage and loss
- Conditions favoring infestation
- Varietal susceptibility

Mealybugs are sap-sucking insects that live on a wide range of host plants. They can infest vines and affect grapes by contaminating bunches and producing honeydew which encourages the growth of sooty moulds.

Mealybugs have caused economic loss in a number of viticultural regions in Australia. By carefully managing insecticide use and encouraging mealybug predators, control can be achieved. Mealybug insecticides should be timed to target the pest in the juvenile life stages.

Characteristics

Adult mealybugs are soft-bodied, segmented insects covered in white powdery wax, with characteristic filaments around the edge of their bodies. They are slow moving and feed on sap, secreting honeydew as a by-product of their feeding activities. They live in colonies composed of adult females, eggs and young (nymphs).

Description

Females:

- 3–5 mm long.
- Flightless.
- Oval and flattened.
- Have 3 nymphal stages with no pupal phase.



Figure 1 Obscure Mealybug

Males:

- Tiny winged insects.
- Waxy tail filaments.
- Go through four nymphal stages.
- Form a white cottony pupa at final nymphal stage, before emerging as an adult.

All nymphal stages of mealybugs look similar to adult females but lack the well-developed waxy coating, and are markedly smaller and somewhat darker.

Identifying different species and their distribution

- Longtailed mealybugs have long tail filaments, and if they are squashed, the colour of the body contents is pale yellow. They occur in all grape-growing regions of Australia.
- Citrophilus mealybugs have deep dark red body contents, and short thick tail filaments, and are confined to south-eastern Australia.
- Tuber mealybugs have orange body contents, and short thin tail filaments. This species occurs in Queensland, some of the warmer northern inland grape growing areas of eastern Australia and parts of south west Western Australia.



Figure 2 Longtailed Mealybug

Other topics in this Viti-Notes series include:

- Mealybugs
- Monitoring mealybugs
- Managing mealybugs

Life cycle

Adult female longtailed mealybugs lay around 100 single eggs, which hatch almost immediately. These first stage or 'instar' nymphs spend several days sheltering under the female before moving out to feed.

Adult females of the citrophilous and tuber mealybugs lay silky or cottony egg sacs containing up to 600 eggs which hatch in several days.

Young mealybugs grow between each nymphal stage. The duration of each generation varies from one to four months, so that three to four generations can occur per year depending on temperature, locality and season.

Mealybugs hatched in autumn survive over winter. They can be found:

- on vines under bark;
- in trellispost cracks;
- in broad-leafed weeds such as nightshade; and
- in some cover crops.

In spring, the overwintering generation moves onto new vine growth soon after budburst. For longtailed mealybug, the new generation of crawlers moves onto new vine growth. Reproduction of the next generation commences in November. Populations can increase markedly during the summer if conditions are favourable.

Symptoms

Table 1 Typical mealybug symptoms

Leaves and bunches	<ul style="list-style-type: none">• Cottony egg sacks, eggs, nymphs and adult mealybugs can be found under leaves, often at the base of shoots and inside bunches.• Dead bloated mealybug 'mummies' may also be visible if parasitic insects are active in the vineyard.• Honeydew deposits and sooty mould may be visible on leaves and berry surfaces.
Vines	<ul style="list-style-type: none">• Vines infested during the season can appear darker during the winter due to an accumulation of sooty mould on canes and bunch remnants.

Damage and Loss

Sap sucking by mealybugs can cause serious crop damage and crop loss. Stunting of vines has also been reported overseas with extremely heavy infestations.

The principal damage associated with mealybugs, however, generally relates to the honeydew secretion of this insect which:

- is visually undesirable;
- makes berries and bunches sticky;
- encourages growth of sooty moulds such as *Aspergillus* spp. and other bunch rotting fungi; and
- prevents proper drying of grapes for dried fruit production.

Heavy infestations of mealybugs can result in premature leaf fall which may affect the ability of a canopy to mature a crop. The tolerance for mealybug contamination is generally very low. Winemakers express concern about the potential for taint caused by high numbers of mealybug and sooty mould in bunches at harvest.

The quality of table-grapes is affected through contamination of bunches by the insects, their honeydew, sooty mould and other moulds.

In Europe, South Africa and New Zealand mealybugs are carriers of leaf roll virus. It has not yet been determined if Australian mealybug populations have affected virus levels in vineyards.

Conditions favoring infestation

Mealybugs prefer mild summers, as hot dry weather kills the young. While this can reduce mealybug infestation pressure into the latter part of the season, populations can rebuild in the cooler autumn if conditions are favourable.

Spur pruned vines are often more vulnerable to mealybug infestation than cane pruned varieties as bunches do not hang as free of older wood. This makes them vulnerable to infestation as they are close to sheltering sites and mealybug appear to be somewhat mobile during the season, moving between foliage and bunches, and sheltering underneath the bark around crowns and cordons.

Dense canopies and vigorous vines provide ideal moist sheltered habitats for mealybugs.

Varietal susceptibility

Those varieties that produce bunches near the base of shoots, so that berries touch the older wood of the vine, can be more prone to infestation of bunches by mealybugs.

Late maturing varieties, or bunches picked later in the season are also at greater risk of significant mealybug infestation as the increased length of the season allows greater population buildup.

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Further information

Learmonth, S. Understanding the biology and improved management of longtailed mealybug in WA.

<http://www.gwrdc.com.au/webdata/resources/project/RT04062.pdf>

Training

For regional specific training in pest and disease control, the AWRI is running Research to Practice: Integrated Pest Management for changing viticultural environments.

Contact

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Agrochemical information

Agrochemicals registered for use in Australian Viticulture - updated annually.

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